SIGNAL DETECTION BASED ON CHANNEL ESTIMATION

ABSTRACT OF THE DISCLOSURE

A receiver for a received signal having two or more different data levels comprises two or more

5   channel estimators, (at least) one channel estimator for each different data level, where each channel estimator preferably implements an adaptive 2nd order or higher model of the transmission channel over which the received signals was transmitted to generate an estimated signal for one of the different data levels. The receiver also has a comparator that compares the current received signal to the estimated signals generated by the different channel estimators to select an output data value for the current

10   received signal. The adaptive model of the transmission channel has coefficients that are dynamically controlled based on an error signal generated by the comparator. Each channel estimator relies on an output signal generated by an adaptive equalizer. In preferred shared-component implementations, each adaptive equalizer is shared by two or more different channel estimators, and, in one possible preferred shared-component implementation, all of the different channel estimators share a single adaptive

15   equalizer.